TGAGTCACACCCTGAAACACAGGCTCTCTTCCTGTCAGGACTGAGTCAGGTAGAAGAGTCGATAAAACCACCTGATCAAGGAAAAG   -91
GAAGGCACAGCGGAGCGCAGAGTGAGAACTCCCAGCGGCGAGGCGCCGGGCAGCGACCCCTGCAGCGGCGGACCGCGCGCCGGCCTGGCC   -1

ATGCCTGCGCTCTGGCTGAGCTGCTACCTCTGCTTCTCGCTCCTCCTGCCCGCAGCCCGGGCCACCTCCGGGAGGGAAGTCTGTGATTGC   90
M   P   A   L   W   L   S   C   Y   L   C   F   S   L   L   L   P   A   A   R   A   T   S   G   R   E   V   C   D   C   30
                                                                                      Dom V

AACGGGAAGTCCAGGCAATGCATCTTTGACCAGGAACTTCACAAACAGACAGGAAATGGATTCCGCTGCCTCAACTGCAATGACAACACT   180
N   G   K   S   R   Q   C   I   F   D   Q   E   L   H   K   Q   T   G   N   G   F   R   C   L   N   C   N   D   N   T   60

GATGGCATCCACTGCGAGAGGTGCAAGGCAGGATTTTTACCGACAGAGAGAAAGGGACCGCTGTTTACCCTGCAATTGTAACTCTAAAGGT   270
D   G   I   H   C   E   R   C   K   A   G   F   Y   R   Q   R   E   R   D   R   C   L   P   C   N   C   N   S   K   G   90

TCTCTTAGCGCTCGATGTGACAACTCTGGACGGTGCAGCTGTAAGCCAGGTGTGACAGGAGACAGGTGTGACCGATGTCTGCCCGGCTTC   360
S   L   S   A   R   C   D   N   S   G   R   C   S   C   K   P   G   V   T   G   D   R   C   D   R   C   L   P   G   F   120

CACACACTCACTGATGCTGGGTGCGCCCAAGACCAAAGGCTGCTAGACTCCAAGTGTGACTGTGACCCAGCTGGCATCTCAGGGCCCTGT   450
H   T   L   T   D   A   G   C   A   Q   D   Q   R   L   L   D   S   K   C   D   C   D   P   A   G   I   S   G   P   C   150

GACTCAGGCCGCTGTGTCTGCAAGCCGGCTGTCACTGGAGAGCGCTGTGATAGGTGTCGACCAGGTTACTATCACCTGGATGGGGGAAAC   540
D   S   G   R   C   V   C   K   P   A   V   T   G   E   R   C   D   R   C   R   P   G   Y   Y   H   L   D   G   G   N   180

CCTCAGGGCTGTACCCAGTGTTTTTGCTATGGGCATTCCGCCAGCTGCCACAGCTCTGGGGACTACAGTGTCCATAAAATCATCTCTGCC   630
P   Q   G   C   T   Q   C   F   C   Y   G   H   S   A   S   C   H   S   S   G   D   Y   S   V   H   K   I   I   S   A   210
                                                          dom. IV

TTCCATCAAGATGTTGATGGCTGGAAGGCTGTCCAAAGAAACGGGTCTCCTGCAAAGCTCCAGTGGTCACAGCGCCATCGGGATATATTT   720
F   H   Q   D   V   D   G   W   K   A   V   Q   R   N   G   S   P   A   K   L   Q   W   S   Q   R   H   R   D   I   F   240

AGCTCAGCACGACGATCAGACCCTGTCTATTTTGTAGCTCCTGCCAAATTTCTTGGGAATCAACAGGTGAGCTACGGGCAAAGCCTATCT   810
S   S   A   R   R   S   D   P   V   Y   F   V   A   P   A   K   F   L   G   N   Q   Q   V   S   Y   G   Q   S   L   S   270

TTTGACTACCGTGTGGATAGGGGAGGCAGACACCCATCTGCCCATGACGTGATCCTGGAAGGTGCTGGTCTACGGATCACAGCTCCCTTG   900
F   D   Y   R   V   D   R   G   G   R   H   P   S   A   H   D   V   I   L   E   G   A   G   L   R   I   T   A   P   L   300

ATGCCACTTAGCAAGACACTGCCTTGTGGGATCACCAAGACTTACACATTCAGATTAAATGAACATCCAAGCAGTAATTGGAGCCCCCAG   990
M   P   L   S   K   T   L   P   C   G   I   T   K   T   Y   T   F   R   L   N   E   H   P   S   S   N   W   S   P   Q   330

CTAAGTTACTTTGAGTATCGGAGGTTACTGCGGAACCTCACAGCCCTGCGGATCCGAGCTACCTACGGAGAATACAGTACTGGGTACATT   1080
L   S   Y   F   E   Y   R   R   L   L   R   N   L   T   A   L   R   I   R   A   T   Y   G   E   Y   S   T   G   Y   I   360

GACAACGTGACCTTGATTTCAGCCCGCCCCGTTTCTGGAGCCCCAGCGCCCTGGGTTGAACAATGTGTATGCCCTGTTGGCTACAAGGGG   1170
D   N   V   T   L   I   S   A   R   P   V   S   G   A   P   A   P   W   V   E   C   V   C   P   V   G   Y   K   G   390
                                                              Dom. III

CAGTTCTGCCAGGATTGTGCTTCCGGCTACAAAAGAGATTCAGCCAGACTGGGACCTTTTGGCACCTGTATTCCATGTAACTGCCAAGGG   1260
Q   F   C   Q   D   C   A   S   G   Y   K   R   D   S   A   R   L   G   P   F   G   T   C   I   P   C   N   C   Q   G   420

GGAGGGGCCTGCGATCCAGACACAGGAGACTGTTACTCAGGGGATGAGAACCCTGACATCCCTGAGTGTGCTGACTGCCCCATTGGTTTC   1350
G   G   A   C   D   P   D   T   G   D   C   Y   S   G   D   E   N   P   D   I   P   E   C   A   D   C   P   I   G   F   450

TACAACGATCCACAAGACCCCCGCAGCTGCAAGCCGTGCCCCTGTCGCAATGGGTTCAGCTGCTCCGTGATGCCTGAGACAGAGGAGGTG   1440
Y   N   D   P   Q   D   P   R   S   C   K   P   C   P   C   R   N   G   F   S   C   S   V   M   P   E   T   E   E   V   480

GTGTGCAATAACTGCCCCCAGGGTGTCACTGGTGCCCGCTGTGAGCTCTGTGCTGATGGCTATTTTGGGGACCCCTTCGGGGAACGTGGC   1530
V   C   N   N   C   P   Q   G   V   T   G   A   R   C   E   L   C   A   D   G   Y   F   G   D   P   F   G   E   R   G   510

CCAGTGAGGCCTTGTCAGCCCTGTCAGTGCAACAACAACGTGGACCCTAGTGCCTCCGGGAACTGTGACCGCCTGACAGGCAGGTGTCTG   1620
P   V   R   P   C   Q   P   C   Q   C   N   N   N   V   D   P   S   A   S   G   N   C   D   R   L   T   G   R   C   L   540

AAGTGCATCCACAACACAGCTGGGGTCCACTGTGACCAGTGCAAAGCAGGCTACTATGGGGACCCGTTGGCTCCCAATCCAGCAGACAAG   1710
K   C   I   H   N   T   A   G   V   H   C   D   Q   C   K   A   G   Y   Y   G   D   P   L   A   P   N   P   A   D   K   570

TGTCGAGCTTGCAACTGCAACCCAGTGGGCTCGGAGCCTGTGGAGTGTCGAAGTGATGGCAGCTGTGTTTGCAAGCCAGGCTTTGGTGGC   1800
C   R   A   C   N   C   N   P   V   G   S   E   P   V   E   C   R   S   D   G   S   C   V   C   K   P   G   F   G   G   600

FIG. 3A

CTCAGCTGTGAGCATGCGGCACTGACCAGCTGTCCAGCTTGCTATAATCAAGTGAAGGTTCAGATGGATCAGTTTATGCAGCAGCTCCAG 1890
L S C E H A A |L T S C P A C Y N Q V K V Q M D Q F M Q Q L Q 630
                    └──►Dom. I/II
ATCCTGGAGGCCCTGATTTCGAAGGCTCAGGGTGGAGCAGTACCCAACGCAGAGCTGGAAGGCAGGATGCAGCAGGCTGAGCAGGCCCTT 1980
I L E A L I S K A Q G G A V P N A E L E G R M Q Q A E Q A L 660
CGGGACATTCTGAGAGAAGCCCAGATTTCACAAGATGCTGTTAGATCCTTCAATCTCCGGGTGGCCAAGGCAAGGACTCAAGAGAATAGC 2070
R D I L R E A Q I S Q D A V R S F N L R V A K A R T Q E N S 690
TACCGGGACCGCCTGGATGACCTCAAGATGACTGTGGAAAGAGTTCGGGCCCTGGGCAGTCAGTATCAGAACCAAGTTCAGGATACTCGC 2160
Y R D R L D D L K M T V E R V R A L G S Q Y Q N Q V Q D T R 730
AGGCTCATCACTCAGATGCGCCTGAGCCTGGAGGAAAGTGAGGCTTCCCTGCAAAACACCAACATTCCTCCTTCAGAGCACTACGTGGGG 2250
R L I T Q M R L S L E E S E A S L Q N T N I P P S E H Y V G 750
CCAAATGGCTTTAAAAGTCTGGCTCAGGAGGCCACGAGATTGGCAGACAGCCATGTTCAGTCAGCCAGTAACATGGAGCAACTGGCAAAG 2340
P N G F K S L A Q E A T R L A D S H V Q S A S N M E Q L A K 780
GAAACCCAGGAGTATTCCAAAGAGCTGATGTCACTGGTGCGCGAGGCTCTGCAGGAAGGAGGCGGAAGCGGCAGCCTGGACGGAGCCGTG 2430
E T Q E Y S K E L M S L V R E A L Q E G G G S G S L D G A V 810
GTGCAAAGGCTTGTGGGAAAATTGCAGAAAACTAAATCTCTGGCCCAGGAGTTGTCGAGGGAGGCCACGCAAACCGACATGGAAGCAGAT 2520
V Q R L V G K L Q K T K S L A Q E L S R E A T Q T D M E A D 840
AGGTCTTATCAGCATAGTCTCCACCTTCTCAATTCCGTGTCTCAGATTCAGGGAGTCAATGATCAGTCCTTGCAGGTAGAAGCGAAGAGG 2610
R S Y Q H S L H L L N S V S Q I Q G V N D Q S L Q V E A K R 870
CTCAGACAAAAAGCTGATTCTCTCTCAAACCGTGTGACTAAGCATATGGATGAGTTCAAGCACGTGCAAAGCAATCTGGGAAACTGGGAA 2700
L R Q K A D S L S N R V T K H M D E F K H V Q S N L G N W E 900
GAAGAAACCCGGCAGCTCTTACAGAATGGAAAGAATGGGAGACAGACATCAGATCAGCTGCTTTCCCGTGCCAACCTTGCTAAAAGCAGA 2790
E E T R Q L L Q N G K N G R Q T S D Q L L S R A N L A K S R 930
GCCCAAGAAGCACTAAGTATGGGCAATGCCACTTTTTATGAAGTTGAGAACATCTTAAAGAATCTCAGAGAGTTTGACCTGCAGGTTGGA 2880
A Q E A L S M G N̄ Ā T̄ F Y E V E N I L K N L R E F D L Q V G 960
GATAAAAGAGCAGAAGCTGAAGAGGCCATGAAGAGACTCTCCTACATCAGCCAGAAGGTTGCAGGTGCCAGTGACAAGACGAAGCAAGCA 2970
D K R A E A E E A M K R L S Y I S Q K V A G A S D K T K Q A 990
GAAGCAGCCCTGGGCAGTGCTGCTGCCGACGCCCAGAGGGCAAAGAATGCAGCCAGGGAGGCCCTGGAGATCTCTGGCAAGATAGAACAG 3060
E A A L G S A A A D A Q R A K N A A R E A L E I S G K I E Q 1020
GAGATAGGAGGTCTGAACTTGGAAGCCAATGTGACAGCAGATGGAGCCTTGGCCATGGAGAAGGGACTGGCCACTCTGAAAAGTGAGATG 3150
E I G G L N L E A N̄ V̄ T̄ A D G A L A M E K G L A T L K S E M 1050
AGAGAAGTGGAAGGAGAGCTGTCAAGGAAGGAGCAGGAGTTTGACATGGATATGGACGCAGTGCAGATGGTAATTGCAGAGGCCCAAAGA 3240
R E V E G E L S R K E Q E F D M D M D A V Q M V I A E A Q R 1080
GTTGAAAACAGAGCCAAGAATGCTGGAGTTACGATCCAAGACACACTCAACACATTGGATGGCATCCTACACCTAATAGACCAGCCTGGC 3330
V E N R A K N A G V T I Q D T L N T L D G I L H L I D Q P G 1110
AGTGTGGATGAAGAGAGGCTGATCTTACTGGAGCAGAAGCTTTTCCGAGCCAAGACTCAGATCAACAGCCAGCTACGGCCCTTGATGTCA 3420
S V D E E R L I L L E Q K L F R A K T Q I N S Q L R P L M S 1140
GAGCTGGAAGAGAGGGCACATCGGCAGAAGGGCCACCTCCGTTTCCTGGAGACTAGCATAGATGGGATTCTGGCTGATGTGAAGAACCTG 3510
E L E E R A H R Q K G H L R F L E T S I D G I L A D V K N L 1170
GAGAACATCAGGGACAACCTGCCCCCGGGCTGCTACAATACCCAGGCTCTTGAGCAACAGtgaagctgccttagagatttctcaaccaag 3600
E N I R D N L P P G C Y N T Q A L E Q Q *   1190
gttcttgggattcagacctagctgccttagagatttctcaaccaaggttcttgggattcagacctcagggctcaggagcccgcatgcggg 3690
tggggtgggatgggaatatttgaatatgttgaatgcgtgtgctcaggccccagtgaacctgatcccatccctgagacctcggccagataa 3780
atgtctttattg   3789-3'

FIG. 3B

horse	1	MPALWLSCYLCFSLLLPAARATSGREVCDCNGKSRQCIFDQELHKQTGNGFRCLNCNDNTDGIHCERCKAGFYRQRERDRCLPCNCNSKGSLSARCDNSG
man	1	MPALWLGCCLCFSLLLPAARATSRREVCDCNGKSRQCIFDRELHRQTGNGFRCLNCNDNTDGIHCEKCKNGFYRHRERDRCLPCNCNSKGSLSARCDNSG
mouse	1	MPALWLSCCLGVALLLPASQATSRREVCDCNGKSRQCVFDQELHRQAGSGFRCLNCNDNTAGVHCERSREGFYQHSKSRCLPCNCHSKGSLSAGCDNSG
horse	101	RCSCKPGVTGDRCDRCLPGFHTLTDAGCAQDQRLLDSKCDCDPAGISGPCDSGRCVCKPAVTGERCDRCRPGYYHLDGGNPQGCTQCFCYGHSASCHSSG
man	101	RCSCKPGVTGARCDRCLPGFHMLTDAGCTQDQRLLDSKCDCDPAGIAGPCDAGRCVCKPAVTGERCDRCRSGYYNLDGGNPEGCTQCFCYGHSASCRSSA
mouse	101	QCRCKPGVTGQRCDQCQPGFHMLTDAGCTRDQGQLDSKCDCDPAGISGPCDSGRCVCKPAVTGERCDRCRPRDYHLDRANPEGCTQCFCYGHSASCHASA
horse	201	DYSVHKIISAFHQDVDGWKAVQRNGSPAKLQWSQRHRDIFSSARRSDPVYFVAPAKFLGNQQVSYGQSLSFDYRVDRGGRHPSAHDVILEGAGLRITAPL
man	201	EYSVHKITSTFHQDVDGWKAVQRNGSPAKLQWSQRHQDVFSSAQRLDPVYFVAPAKFLGNQQVSYGQSLSFDYRVDRGGRHPSAHDVILEGAGLRITAPL
mouse	201	DFSVHKITSTFSQDVDGWKAVQRNGAPAKLHWSQRHRDVFSSARRSDPVYFVAPAKFLGNQQVSYGQSLSFDYRVDRGGRQPSAYDVILEGAGLQIRAPL
horse	301	MPLSKTLPCGITKTYTFRLNEHPSSNWSPQLSYFEYRRLLRNLTALR-IRATYGEYSTGYIDNVTLISARPVSGAPAPWVEQCVCPVGYKGQFCQDCASG
man	301	MPLGKTLPCGLTKTYTFRLNEHPSNNWSPQLSYFEYRRLLRNLTALR-IRATYGEYSTGYIDNVTLISARPVSGAPAPWVEQCICPVGYKGQFCQDCASG
mouse	301	MAPGKTLPCGITKTYTFRLNEHPSSHWSPQLSYFEYRRLLRNLTALLMIRATYGEYSTGYIDNVTLVSARPVLGAPAPWVERCVCLLGYKGQFCQECASG
horse	400	YKRDSARLGPFGTCIPCNCQGGACDPDTGDCYSGDENPDIPECADCPIGFYNDPQDPRSCKPCPCRNGFSCSVMPETEEVVCNNCPQGVTGARCELCAD
man	400	YKRDSARLGPFGTCIPCNCQGGACDPDTGDCYSGDENPDI-ECADCPIGFYNDPHDPRSCKPCPCHNGFSCSVMPETEEVVCNNCPPGVTGARCELCAD
mouse	401	YKRDSARLGAFGACVPCNCQGEGACDPDTGDCYSGDENPDI-ECADCPIGFYNDPHDPRSCKPCPCHNGFSCSVMPETEEVVCNNCPPGVTGARCELCAD
horse	500	GYFGDPFGERGPVRPCQPCQCNNNVDPSASGNCDRLTGRCLKCIHNTAGVHCDQCKAGYYGDPLAPNPADKCRACNCNPVGSEPVECRSDGSCVCKPGFG
man	499	GYFGDPFGEHGPVRPCQPCQCNNNVDPSASGNCDRLTGRCLKCIHNTAGIYCDQCKAGYFGDPLAPNPADKCRACNCNPMGSEPVGCRSDGTCVCKPGFG
mouse	500	GFFGDPFGEHGPVRPCQRCQCNNNVDPNASGNCDQLTGRCLKCIYNTAGVYCDQCKAGYFGDPLAPNPADKCRACNCSPMGAEPGECRGDGSCVCKPGFG
horse	600	GLSCEHAALTSCPACYNQVKVQMDQFMQQLQILEALISKAQGG---AVPNAELEGRMQQAEQALRDILREAQISQDAVRSFNLRVAKARTQENSYRDRLD
man	599	GPNCEHGAFS-CPACYNQVKIQMDQFMQQLQRMEALISKAQGGDG-VVPDTELEGRMQQAEQALQDILRDAQISEGASRSLGLQLAKVRSQENSYQSRLD
mouse	600	AFNCDHAALTSCPACYNQVKIQMDQFTQQLQSLEALVSKAQGGGGGTPVQLEGRIEQAEQALQDILGEAQISEGAMRAVAVRLAKARSQENDYKTRLD
horse	697	DLKMTVERVRALGSQYQNQVQDTRRLITQMRLSLEESEASLQNTNIPPSEHYVGPNGFKSLAQEATRLADSHVQSASNMEQLAKETQEYSKELMSLVREA
man	697	DLKMTVERVRALGSQYQNRVRDTHRLITQMQLSLAESEASLGNTNIPASDHYVGPNGFKSLAQEATRLAESHVESASNMEQLTRETEDYSKQALSLVRKA
mouse	700	DLKMTAERIRALGSQHQNRVQDTSRLISQMRLSLAGSEALLENTNIHSSEHYVGPNDFKSLAQEATRKADSHAESANAMKQLARETEDYSKQALSLARKL
horse	797	LQE--GGGSGSLDGAVVQRLVGKLQKTKSLAQELSREATQTDMEADRSYQHSLHLLNSVSQIQGVNDQSLQVEAKR-LRQKADSLSNRVTKHMDEFKHVQ
man	797	LHEGVGSGSGSPDGAVVQGLVEKLEKTKSLAQQLTREATQAEIEADRSYQHSLRLLDSVSRLQGVSDQSFQVEEAKRIKQKADSLSTLVTRHMDEFKRTQ
mouse	800	LSG--GGGSGSWDSSVVQGLMGKLEKTKSLSQQLSLEGTQADIEADRSYQHSLRLLDSASQLQGVSDLSFQVEAKR-IRQKADSLSNLVTRQTDAFTRVR
horse	894	SNLGNWEETRQLLQNGKNGRQTSDQLLSRANLAKSRAQEALSMGNATFYEVENILKNLREFDLQVGDKRAEAEEAMKRLSYISQKVAGASDKTKQAEAA
man	897	KNLGNWKEEAQQLLQNGKSGREKSDQLLSRANLAKSRAQEALSMGNATFYEVESILKNLREFDLQVDNRKAEAEEAMKRLSYISQKVSDASDKTQQAERA
mouse	897	NNLGNWEKETRQLLQTGKDRRQTSDQLLSRANLAKNRAQEALSMGNATFYEVENILKNLREFDLQVEDRKAEAEEAMKRLSSISQKVADASDKTQQAETA
horse	994	LGSAAADAQRAKNAAREALEISGKIEQEIGGLNLEANVTADGALAMEKGLATLKSEMREVEGELSRKEQEFDMDMDAVQMVIAEAQRVENRAKNAGVTIQ
man	997	LGSAAADAQRAKNGAGEALEISSEIEQEIGSLNLEANVTADGALAMEKGLASLKSEMREVEGELERKELEFDTNMDAVQMVITEAQKVDTRAKNAGVTIQ
mouse	997	LGSATADTQRAKNAAREALEISSEIELEIGSLNLEANVTADGALAMEKGTATLKSEMREMI-ELARKELEFDTDKDTVQLVITEAQQADARATSAGVTIQ
horse	1094	DTLNTLDGILHLIDQPGSVDEERLILLEQKLFRAKTQINSQLRPLMSELEERAHRQKGHLRFLETSIDGILADVKNLENIRDNLPPGCYNTQALEQQ
man	1097	DTLNTLDGLLHLMDQPLSVDEEGLVLLEQKLSRAKTQINSQLRPMMSELEERARQQRGHLHLLETSIDGILADVKNLENIRDNLPPGCYNTQALEQQ
mouse	1096	DTLNTLDGILHLIDQPGSVDEEGMMLLEQGLFQAKTQINSRLRPLMSDLEERVRRQRNHLHLLETSIDGILADVKNLENIRDNLPPGCYNTQALEQQ

FIG. 4

TGAGTCACACCCTGAAACACAGGCTCTCTTCCTGTCAGGACTGAGTCAGGTAGAAGAGTCGATAAAACCACCTGATCAAGGAAAAG   -91
GAAGGCACAGCGGAGCGCAGAGTGAGAACTCCCAGCGGCGAGGCGCCGGGCAGCGACCCCTGCAGCGGCGGACCGCGCGCCGGCCTGGCC -1

ATGCCTGCGCTCTGGCTGAGCTGCTACCTCTGCTTCTCGCTCCTCCTGCCCGCAGCCCGGGCCACCTCCGGGAGGGAAGTCTGTGATTGC 90
M P A L W L S C Y L C F S L L L P A A R A T S G R E V C D C   30
                                                                          Dom V

AACGGGAAGTCCAGGCAATGCATCTTTGACCAGGAACTTCACAAACAGACAGGAAATGGATTCCGCTGCCTCAACTGCAATGACAACACT 180
N G K S R Q C I F D Q E L H K Q T G N G F R C L N C N D N T   60

GATGGCATCCACTGCGAGAGGTGCAAGGCAGGATTTTACCGACAGAGAGAAAGGGACCGCTGTTTACCCTGCAATTGTAACTCTAAAGGT 270
D G I H C E R C K A G F Y R Q R E R D R C L P C N C N S K G   90

TCTCTTAGCGCTCGATGTGACAACTCTGGACGGTGCAGCTGTAAGCCAGGTGTGACAGGAGACAGGTGTGACCGATGTCTGCCCGGCTTC 360
S L S A R C D N S G R C S C K P G V T G D R C D R C L P G F   120

CACACACTCACTGATGCTGGGTGCGCCCAAGACCAAAGGCTGCTAGACTCCAAGTGTGACTGTGACCCAGCTGGCATCTCAGGGCCCTGT 450
H T L T D A G C A Q D Q R L L D S K C D C D P A G I S G P C   150

GACTCAGGCCGCTGTGTCTGCAAGCCGGCTGTCACTGGAGAGCGCTGTGATAGGTGTCGACCAGGTTACTATCACCTGGATGGGGGAAAC 540
D S G R C V K P A V T G E R C D R C R P G Y Y H L D G G N   180

CCTCAGGGCTGTACCCAGTGTTTTTGCTATGGGCATTCCGCCAGCTGCCACAGCTCTGGGGACTACAGTGTCCATAAAATCATCTCTGCC 630
P Q G C T Q C F C Y G H S A S C H S S G D Y S V H K I I S A   210
                                                 dom. IV

TTCCATCAAGATGTTGATGGCTGGAAGGCTGTCCAAAGAAACGGGTCTCCTGCAAAGCTCCAGTGGTCACAGCGCCATCGGGATATATTT 720
F H Q D V D G W K A V Q R N G S P A K L Q W S Q R H R D I F   240

AGCTCAGCACGACGATCAGACCCTGTCTATTTTGTAGCTCCTGCCAAATTTCTTGGGAATCAACAGGTGAGCTACGGGCAAAGCCTATCT 810
S S A R R S D P V Y F V A P A K F L G N Q Q V S Y G Q S L S   270

TTTGACTACCGTGTGGATAGGGGAGGCAGACACCCATCTGCCCATGACGTGATCCTGGAAGGTGCTGGTCTACGGATCACAGCTCCCTTG 900
F D Y R V D R G G R H P S A H D V I L E G A G L R I T A P L   300

ATGCCACTTAGCAAGACACTGCCTTGTGGGATCACCAAGACTTACACATTCAGATTAAATGAACATCCAAGCAGTAATTGGAGCCCCCAG 990
M P L S K T L P C G I T K T Y T F R L N E H P S S N W S P Q   330

CTAAGTTACTTTGAGTATCGGAGGTTACTGCGGAACCTCACAGCCCTGCGGATCCGAGCTACCTACGGAGAATACAGTACTGGGTACATT 1080
L S Y F E Y R R L L R N L T A L R I R A T Y G E Y S T G Y I   360

GACAACGTGACCTTGATTTCAGCCCGCCCCGTTTCTGGAGCCCCAGCGCCCTGGGTTGAACAATGTGTATGCCCTGTTGGCTACAAGGGG 1170
D N V T L I S A R P V S G A P A P W V E Q C V C P V G Y K G   390
                                                             Dom. III

CAGTTCTGCCAGGATTGTGCTTCCGGCTACAAAAGAGATTCAGCCAGACTGGGACCTTTTGGCACCTGTATTCCATGTAACTGCCAAGGG 1260
Q F C Q D C A S G Y K R D S A R L G P F G T C I P C N C Q G   420

GGAGGGGCCTGCGATCCAGACACAGGAGACTGTTACTCAGGGGATGAGAACCCTGACATCCCTGAGTGTGCTGACTGCCCCATTGGTTTC 1350
G G A C D P D T G D C Y S G D E N P D I P E C A D C P I G F   450

TACAACGATCCACAAGACCCCCGCAGCTGCAAGCCGTGCCCCTGTCGCAATGGGTTCAGCTGCTCCGTGATGCCTGAGACAGAGGAGGTG 1440
Y N D P Q D P R S C K P C P C R N G F S C S V M P E T E E V   480

GTGTGCAATAACTGCCCCCAGGGTGTCACTGGTGCCCGCTGTGAGCTCTGTGCTGATGGCTATTTTGGGGACCCCTTCGGGGAACGTGGC 1530
V C N N C P Q G V T G A R C E L C A D G Y F G D P F G E R G   510

CCAGTGAGGCCTTGTCAGCCCTGTCAGTGCAACAACAACGTGGACCCTAGTGCCTCCGGGAACTGTGACCGCCTGACAGGCAGGTGTCTG 1620
P V R P C Q P C Q C N N N V D P S A S G N C D R L T G R C L   540

AAGTGCATCCACAACACAGCTGGGGTCCACTGTGACCAGTGCAAAGCAGGCTACTATGGGGACCCGTTGGCTCCCAATCCAGCAGACAAG 1710
K C I H N T A G V H C D Q C K A G Y Y G D P L A P N P A D K   570

TGTCGAGCTTGCAACTGCAACCCAGTGGGCTCGGAGCCTGTGGAGTGTCGAAGTGATGGCAGCTGTGTTTGCAAGCCAGGCTTTGGTGGC 1800
C R A C N C N P V G S E P V E C R S D G S C V C K P G F G G   600

FIG. 3A

CTCAGCTGTGAGCATGCGGCACTGACCAGCTGTCCAGCTTGCTATAATCAAGTGAAGGTTCAGATGGATCAGTTTATGCAGCAGCTCCAG 1890
L S C E H A A │L T S C P A C Y N Q V K V Q M D Q F M Q Q L Q   630
                    └──►Dom. I/II
ATCCTGGAGGCCCTGATTTCGAAGGCTCAGGGTGGAGCAGTACCCAACGCAGAGCTGGAAGGCAGGATGCAGCAGGCTGAGCAGGCCCTT 1980
I L E A L I S K A Q G G A V P N A E L E G R M Q Q A E Q A L   660
CGGGACATTCTGAGAGAAGCCCAGATTTCACAAGATGCTGTTAGATCCTTCAATCTCCGGGTGGCCAAGGCAAGGACTCAAGAGAATAGC 2070
R D I L R E A Q I S Q D A V R S F N L R V A K A R T Q E N S   690
TACCGGGACCGCCTGGATGACCTCAAGATGACTGTGGAAAGAGTTCGGGCCCTGGGCAGTCAGTATCAGAACCAAGTTCAGGATACTCGC 2160
Y R D R L D D L K M T V E R V R A L G S Q Y Q N Q V Q D T R   730
AGGCTCATCACTCAGATGCGCCTGAGCCTGGAGGAAAGTGAGGCTTCCCTGCAAAACACCAACATTCCTCCTTCAGAGCACTACGTGGGG 2250
R L I T Q M R L S L E E S E A S L Q N T N I P P S E H Y V G   750
CCAAATGGCTTTAAAAGTCTGGCTCAGGAGGCCACGAGATTGGCAGACAGCCATGTTCAGTCAGCCAGTAACATGGAGCAACTGGCAAAG 2340
P N G F K S L A Q E A T R L A D S H V Q S A S N M E Q L A K   780
GAAACCCAGGAGTATTCCAAAGAGCTGATGTCACTGGTGCGCGAGGCTCTGCAGGAAGGAGGCGGAAGCGGCAGCCTGGACGGAGCCGTG 2430
E T Q E Y S K E L M S L V R E A L Q E G G G S G S L D G A V   810
GTGCAAAGGCTTGTGGGAAAATTGCAGAAAACTAAATCTCTGGCCCAGGAGTTGTCGAGGGAGGCCACGCAAACCGACATGGAAGCAGAT 2520
V Q R L V G K L Q K T K S L A Q E L S R E A T Q T D M E A D   840
AGGTCTTATCAGCATAGTCTCCACCTTCTCAATTCCGTGTCTCAGATTCAGGGAGTCAATGATCAGTCCTTGCAGGTAGAAGCGAAGAGG 2610
R S Y Q H S L H L L N S V S Q I Q G V N D Q S L Q V E A K R   870
CTCAGACAAAAAGCTGATTCTCTCTCAAACCGTGTGACTAAGCATATGGATGAGTTCAAGCACGTGCAAAGCAATCTGGGAAACTGGGAA 2700
L R Q K A D S L S N R V T K H M D E F K H V Q S N L G N W E   900
GAAGAAACCCGGCAGCTCTTACAGAATGGAAAGAATGGGAGACAGACATCAGATCAGCTGCTTTCCCGTGCCAACCTTGCTAAAAGCAGA 2790
E E T R Q L L Q N G K N G R Q T S D Q L L S R A N L A K S R   930
GCCCAAGAAGCACTAAGTATGGGCAATGCCACTTTTTATGAAGTTGAGAACATCTTAAAGAATCTCAGAGAGTTTGACCTGCAGGTTGGA 2880
A Q E A L S M G [N A T] F Y E V E N I L K N L R E F D L Q V G   960
GATAAAAGAGCAGAAGCTGAAGAGGCCATGAAGAGACTCTCCTACATCAGCCAGAAGGTTGCAGGTGCCAGTGACAAGACGAAGCAAGCA 2970
D K R A E A E E A M K R L S Y I S Q K V A G A S D K T K Q A   990
GAAGCAGCCCTGGGCAGTGCTGCTGCCGACGCCCAGAGGGCAAAGAATGCAGCCAGGGAGGCCCTGGAGATCTCTGGCAAGATAGAACAG 3060
E A A L G S A A A D A Q R A K N A A R E A L E I S G K I E Q   1020
GAGATAGGAGGTCTGAACTTGGAAGCCAATGTGACAGCAGATGGAGCCTTGGCCATGGAGAAGGGACTGGCCACTCTGAAAAGTGAGATG 3150
E I G G L N L E A [N V T] A D G A L A M E K G L A T L K S E M   1050
AGAGAAGTGGAAGGAGAGCTGTCAAGGAAGGAGCAGGAGTTTGACATGGATATGGACGCAGTGCAGATGGTAATTGCAGAGGCCCAAAGA 3240
R E V E G E L S R K E Q E F D M D M D A V Q M V I A E A Q R   1080
GTTGAAAACAGAGCCAAGAATGCTGGAGTTACGATCCAAGACACACTCAACACCATTGGATGGCATCCTACACCTAATAGACCAGCCTGGC 3330
V E N R A K N A G V T I Q D T L N T L D G I L H L I D Q P G   1110
AGTGTGGATGAAGAGAGGCTGATCTTACTGGAGCAGAAGCTTTTCCGAGCCAAGACTCAGATCAACAGCCAGCTACGGCCCTTGATGTCA 3420
S V D E E R L I L L E Q K L F R A K T Q I N S Q L R P L M S   1140
GAGCTGGAAGAGAGGGCACATCGGCAGAAGGGCCACCTCCGTTTCCTGGAGACTAGCATAGATGGGATTCTGGCTGATGTGAAGAACCTG 3510
E L E E R A H R Q K G H L R F L E T S I D G I L A D V K N L   1170
GAGAACATCAGGGACAACCTGCCCCCGGGCTGCTACAATACCCAGGCTCTTGAGCAACAGtgaagctgccttagagatttctcaaccaag 3600
E N I R D N L P P G C Y N T Q A L E Q Q *   1190
gttcttgggattcagacctagctgccttagagatttctcaaccaaggttcttgggattcagacctcagggctcaggagcccgcatgcggg 3690
tggggtgggatgggaatatttgaatatgttgaatgcgtgtgctcaggccccagtgaacctgatcccatccctgagacctcggccagataa 3780
atgtctttattg   3789-3'

FIG. 3B

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horse    1     MPALWLSCYLCFSLLLPAARATSGREVCDCNGKSRQCIFDQELHKQTGNGFRCLNCNDNTDGIHCERCKAGFYRQRERDRCLPCNCNSKGSLSARCDNSG
man      1     MPALWLGCCLCFSLLLPAARATSRREVCDCNGKSRQCIFDRELHRQTGNGFRCLNCNDNTDGIHCEKCKNGFYRHRERDRCLPCNCNSKGSLSARCDNSG
mouse    1     MPALWLSCCLGVALLLPASQATSRREVCDCNGKSRQCVFDQELHRQAGSGFRCLNCNDNTAGVHCERSREGFYQHQSKSRCLPCNCHSKGSLSAGGDNSG

horse    101   RCSCKPGVTGDRCDRCLPGFHTLTDAGCAQDQRLLDSKCDCDPAGISGPCDSGRCVCKPAVTGERCDRCRPGYYHLDGGNPQGCTQCFCYGHSASCHSSG
man      101   RCSCKPGVTGARCDRCLPGFHMLTDAGCTQDQRLLDSKCDCDPAGIAGPCDAGRCVCKPAVTGERCDRCRSGYYNLDGGNPEGCTQCFCYGHSASCRSSA
mouse    101   QCRCKPGVTGQRCDQCQPGFHMLTDAGCTRDQGQLDSKCDCDPAGISGPCDSGRCVCKPAVTGERCDRCRPRDYHLDRANPEGCTQCFCYGHSASCHASA

horse    201   DYSVHKIISAFHQDVDGWKAVQRNGSPAKLQWSQRHRDIFSSARRSDPVYFVAPAKFLGNQQVSYGQSLSFDYRVDRGGRHPSAHDVILEGAGLRITAPL
man      201   EYSVHKITSTFHQDVDGWKAVQRNGSPAKLQWSQRHQDVFSSAQRLDPVYFVAPAKFLGNQQVSYGQSLSFDYRVDRGGRHPSAHDVILEGAGLRITAPL
mouse    201   DFSVHKITSTFSQDVDGWKAVQRNGAPAKLHWSQRHRDVFSSARRSDPVYFVAPAKFLGNQQVSYGQSLSFDYRVDRGGRQPSAYDVILEGAGLQIRAPL

horse    301   MPLSKTLPCGITKTYTFRLNEHPSSNWSPQLSYFEYRRLLRNLTALR-IRATYGEYSTGYIDNVTLISARPVSGAPAPWVEQCVCPVGYKGQFCQDCASG
man      301   MPLGKTLPCGLTKTYTFRLNEHPSNNWSPQLSYFEYRRLLRNLTALR-IRATYGEYSTGYIDNVTLISARPVSGAPAPWVEQCICPVGYKGQFCQDCASG
mouse    301   MAPGKTLPCGITKTYTFRLNEHPSSHWSPQLSYFEYRRLLRNLTALLMIRATYGEYSTGYIDNVTLVSARPVLGAPAPWVERCVCLLGYKGQFCQECASG

horse    400   YKRDSARLGPFGTCIPCNCQGGACDPDTGDCYSGDENPDIPECADCPIGFYNDPQDPPRSCKPCPCRNGFSCSVMPETEEVVCNNCPQGVTGARCELCAD
man      400   YKRDSARLGPFGTCIPCNCQGGACDPDTGDCYSGDENPDI-ECADCPIGFYNDPHDPRSCKPCPCHNGFSCSVMPETEEVVCNNCPPGVTGARCELCAD
mouse    401   YKRDSARLGAFGACVPCNCQGEGACDPDTGDCYSGDENPDI-ECADCPIGFYNDPHDPRSCKPCPCHNGFSCSVMPETEEVVCNNCPPGVTGARCELCAD

horse    500   GYFGDPFGERGPVRPCQPCQCNNNVDPSASGNCDRLTGRCLKCIHNTAGVHCDQCKAGYYGDPLAPNPADKCRACNCNPVGSEPVECRSDGSCVCKPGFG
man      499   GYFGDPFGEHGPVRPCQPCQCNNNVDPSASGNCDRLTGRCLKCIHNTAGIYCDQCKAGYFGDPLAPNPADKCRACNCNPMGSEPVGCRSDGTCVCKPGFG
mouse    500   GFFGDPFGEHGPVRPCQRCQCNNNVDPNASGNCDQLTGRCLKCIYNTAGVYCDQCKAGYFGDPLAPNPADKCRACNCNCSPMGAEPGECRGDGSCVCKPGFG

horse    600   GLSCEHAALTSCPACYNQVKVQMDQFMQQLQILEALISKAQGG---AVPNAELEGRMQQAEQALRDILREAQISQDAVRSFNLRVAKARTQENSYRDRLD
man      599   GPNCEHGAFS-CPACYNQVKIQMDQFMQQLQRMEALISKAQGGDG-VVPDTELEGRMQQAEQALQDILRDAQISEGASRSLGLQLAKVRSQENSYQSRLD
mouse    600   AFNCDHAALTSCPACYNQVKIQMDQFTQQLQSLEALVSKAQGGGGGTVPVQLEGRIEQAEQALQDILGEAQISEGAMRAVAVRLAKARSQENDYKTRLD

horse    697   DLKMTVERVRALGSQYQNQVQDTRRLITQMRLSLEESEASLQNTNIPPSEHYVGPNGFKSLAQEATRLADSHVQSASNMEQLAKETQEYSKELMSLVREA
man      697   DLKMTVERVRALGSQYQNRVRDTHRLITQMQLSLAESEASLGNTNPASDHYVGPNGFKSLAQEATRLAESHVESASNMEQLTRETEDYSKQALSLVRKA
mouse    700   DLKMTAEBRIRALGSQHQNRVQDTSRLISQMRLSLAGSEALLENTNIHSSEHYVGPNDFKSLAQEATRKADSHAESANAMKQLARETEDYSKQALSLARKL

horse    797   LQE---GGGSGSLDGAVVQRLVGKLQKTKSLAQELKTKSLAQLTREATQAEIEADRSYQHSLRLLDSVSRLQGVSDQSFQVEEAKR-LRQKADSLSNRVTKHMDEFKHVQ
man      797   LHEGVGSGSGSPDGAVVQGLVEKLEKTKSLAQELKTKSLAQQLTREATQAEIEADRSYQHSLRLLDSVSRLQGVSDQSFQVEEAKRIKQKADSLSTLVTRHMDEFKRTQ
mouse    800   LSG---GGGSGSWDSSVVQGLMGKLEKTKSLSQQLSLEGTQADIEADRSYQHSLRLLDSASQLQGVSDLSFQVEAKR-IRQKADSLSNLVTRQTDAFTRVR

horse    894   SNLGNWEEETRQLLQNGKNGRQTSDQLLSRANLAKSRAQEALSMGNATFYEVENILKNLREFDLQVGDKRAEAEEAMKRLSYISQKVAGASDKTKQAEAA
man      897   KNLGNWKEEAQQLLQNGKSGREKSDQLLSRANLAKSRAQEALSMGNATFYEVESILKNLREFDLQVDNRKAEAEEAMKRLSYISQKVSDASDKTQQAERA
mouse    897   NNLGNWEKETRQLLQTGKDRRQTSDQLLSRANLAKNRAQEALSMGNATFYEVENILKNLREFDLQVEDRKAEAEEAMKRLSSISQKVADASDKTQQAETA

horse    994   LGSAAADAQRAKNAAREALEISGKIEQEIGGLNLEANVTADGALAMEKGLATLKSEMREVEGELSRKEQEFDMDMDAVQMVIAEAQRVENRAKNAGVTIQ
man      997   LGSAAADAQRAKNGAGEALEISSEIEQEIGSLNLEANVTADGALAMEKGLASLKSEMREVEGELERKELEFDTNMDAVQMVITEAQKVDTRAKNAGVTIQ
mouse    997   LGSATADTQRAKNAAREALEISSEIELEIGSLNLEANVTADGALAMEKGTATLKSEMREMI-ELARKELEFDTDKDTVQLVITEAQQADARATSAGVTIQ

horse    1094  DTLNTLDGILHLIDQPGSVDEERLILLEQKLFRAKTQINSQLRPLMSELEERAHRQKGHLRFLETSIDGILADVKNLENIRDNLPPGCYNTQALEQQ
man      1097  DTLNTLDGLLHLMDQPLSVDEEGLVLLEQKLSRAKTQINSQLRPMMSELEERARQQRGHLHLLETSIDGILADVKNLENIRDNLPPGCYNTQALEQQ
mouse    1096  DTLNTLDGILHLIDQPGSVDEEGMMLLEQGLFQAKTQINSRLRPLMSDLEERVRRQRNHLHLLETSIDGILADVKNLENIRDNLPPGCYNTQALEQQ
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FIG. 4